Chemical & Metallurgical Engineering

Volume XXXVII

From January to December

1930

Published monthly by
McGRAW-HILL PUBLISHING COMPANY, INC.
NEW YORK

HENRY M. BATTERS
Market Editor
JAMES A. LEE
Assistant Editor
THEODORE R. OLIVE
Assistant Editor
RICHARD KOCH
Assistant Editor

CHEMICAL & METALLURGICAL ENGINEERING

R. S. McBRIDE
Washington
PAUL D. V. MANNING
San Francisco
Assistant Editors
M. A. WILLIAMSON
Publishing Director

S. D. KIRKPATRICK, *Editor*

Chemical & Metallurgical Engineering is the successor to *Metallurgical & Chemical Engineering*, which, in turn, was a consolidation of *Electrochemical & Metallurgical Industry* and *Iron & Steel Magazine*. The magazine was originally founded as *Electrochemical Industry*.

McGraw-Hill Publishing Company, Inc., New York City

Volume XXXVII

January to December, 1930

GENERAL ALPHABETICAL INDEX

	Pages
January	1 to 72
February	73 to 136
March	137 to 200
April	201 to 272
May	273 to 336
June	337 to 400
July	401 to 464
August	465 to 528
September	529 to 600
October	601 to 664
November	665 to 724
December	725 to 788

A

Accidents and accident prevention. See Safety.
Acetic acid. From cellulose waste. 500
Larger output 52
Acids. Automatically controlling acid effluents. H. K. Richardson. 293
Carbon tubes offer advantages in Cottrell units. A. D. Camp. *676
Adsorption (S.) 312
In oil refining (S.) 766
Advertising. Bigger and better goat pastures (ed.) 667
Reach for a pencil instead (ed.). 467
Air:
Acid eggs and air lifts. Badger & McCabe 430
Flow in agitation problems. P. N. Kauffman 178
Is smoke responsible for property damage? R. D. MacLaurin. 157
Unit compressor (E. N.) 183
Alcohol:
Contraband stills *162
Ethyl, distillation improvements questioned (c.) Chute 106
Ethyl, distillation improvements (c.). Reich 107
Ethyl, production increases 60
Facts about industrial. W. N. Watson 160
Ethyl, unseemly conduct in chemical competition (ed.) 666
New denaturant for industrial 766
Users reassured (ed.) 338
Where does the bootlegger get his? I. D. Foos 163
Alkali, Producing plants in the U. S. 1930. 5
Consumption trend upward 53
Sodium metasilicate. J. G. Vail. . . . *736
Alumina brick. W. F. Rochow. 589
From bauxite (S.) 176
Aluminum:
Adaptation to construction. J. D. Edwards 428
Alloys used in construction of research laboratory of Aluminum Co. R. S. McBride 352
Applying in petroleum refinery. S. Gill 483
Foil coatings cut evaporation losses (P. N.) 508
Invades the structural field. 143
Plating nickel on aluminum. 694
American Chemical Society, Atlanta meeting 286
High-pressure symposium features of meeting 592
Industrial fermentation 623
American Electrochemical Society, Meeting discusses corrosion 611
St. Louis meeting 357
American Gas Association, Chemical conference 354
American Institute of Chemical Engineers, Detroit meeting 345
New Orleans meeting. 732
Ammonia:
Ammonium nitrate production aided by pressure. G. Fauser 591
Binary chemical cycle proposed for power generation 758
Byproduct ammonia world production. C. Tyler 538
Cheaper made with off-peak electric power. P. McMichael 484
Container *583
Dissociated to produce hydrogen. Berliner & Burke 751
Dissociator (E. N.) *769
Electric dissociator (E. N.) *771
High-pressure synthesis in plant (picture feature) 546
Oxidation by pressure system. G. Fauser *604
Production for sale in U. S. 53
Used as heavy chemical (ed.) 338
Will synthetics completely displace organic ammoniates? G. P. Walton 619
Ammonia-soda. Plants economize with mechanical handling. L. C. Hughes 232
Ammonium sulphate made by new processes 681
Asphalt, Clay-type dispersions produced. J. Miscall 490
New mill brings economies to emulsion industry. E. S. Ross 425
Aluminum coating (E. N.) 772
Autoclaves (S.) 377

B

Bale sampler, "Cork-borer." L. K. Arnold (P. N.) 445
Barrels, use older ones first. L. E. Brunner (P. N.) 380
Bearings, self-lubricating (E. N.) 704
Belts, Short-center drive (E. N.). 115
Static-proof (E. N.) 646
Waterproof leather (E. N.). 511
Carrier (E. N.) 770
Benzol production may become refinery function 99
Book Reviews:
Abeggs handbuch der anorganischen chemie. R. Abegg & others. 764
American petroleum refining. H. S. Bell 310
Analysis in a steel works. C. M. Johnson 638
Annual reports on the progress of applied chemistry 376
Annual survey of American Chemistry IV. Ed. by C. H. West 376
Atlas metallographicus. H. Hanemann and A. Schrader 175
Bearing metals and bearings. W. S. Corse 438
Betriebmittelkunde für Chemiker. M. Dolch 638
Bituminous materials, asphalt and allied substances. H. Abrahams. . . . 175
Cellulose lacquer. Stanley Smith 375
Chemistry and the man. Pauline Beery 504
Chemistry of leather manufacture. J. A. Wilson 173
Chemistry of the colloid state. J. C. Ware 311
Coal carbonization. R. Wigginton. . . 697
Colloid chemistry. J. Alexander. . . . 504
Colloid symposium annual (ed.). H. B. Weiser 311
Comprehensive treatise of inorganic and theoretical chemistry. J. W. Mellor 639
Condensed chemical dictionary revised by T. C. Gregory and others. 504
Book Reviews, continued:
Construction and equipment of chemical laboratories. Natl. Research Council Comm. 375
Creep of steels at high temperature. F. H. Norton 108
Crucibles; the lives and achievements of the great chemists. B. Jaffe. . . . 504
Derivati agrumari: industria e commercio. C. Rodano 259
Diatomaceous earth. R. Calvert. . . . 763
Dictionary of color. Maerz & Paul. 697
Die Krackverfahren unter Anwendung von Druck. J. Springer. 311
Dizionario di merceologia e di chimica applicata. Ulrico Hoepli 505
Electroplating with chromium, copper and nickel. B. Freeman and F. G. Hoppe 175
Elektrokemi. Gösta Angel 505
Elements of fractional distillation. C. S. Robinson 437
Enduits cellulosiques. W. Main. . . . 109
Engineer's vest pocket book. W. A. Thomas 764
Experimental physical chemistry. F. Daniels and others 310
Experiments in general chemistry. H. W. Stone and M. S. Dunn. 174
Gas analysis. L. M. Dennis and M. K. Nichols 173
General chemistry. H. N. Holmes. . 438
General college chemistry. J. A. Babor 174
German coking studies. H. Hock. . . 438
German coking studies. Agde & von Lyncker 438
German coking studies. F. Mahlert. . 438
German-English technical and scientific dictionary. A. Webel. 505
Handbook for cane manufacturers and their chemists. G. L. Spencer and G. P. Meade 258
Handbook of chemical microscopy. E. M. Chamot 174
Impurities in metals. C. J. Smithells 698
Index to the chemical action of microorganisms on the non-nitrogenous organic compounds. Fulmer & Werkman 376
Inorganic qualitative chemical analysis. A. R. Day 438
Katalytische Reaktionen in der organischchemischen Industrie. H. Brueckner 639
Laboratory manual in general college chemistry. J. A. Babor and A. Lehrman 174
L'alluminio, I metalli leggeri e le loro leghe. Koelliker & Magnani. . 437
Latex. E. A. Hauser and J. W. Kelly 437
Material handling equipment. E. J. Tournier 258
Measurement of hydrogen-ion concentration. J. Grant 503
Mechanical engineer's handbook. L. S. Marks 764
Merck's index 259
Metallkeramik. F. Skaupy 259
Metallurgy of white metal scrap and residues. E. R. Thews. 638
Outlines of biochemistry. R. A. Gortner 259
Piping handbook. Walker & Crocker 640
Plant location. W. G. Holmes. 503
Principles of electroplating and electroforming. W. Blum and G. B. Hogaboom 174
Prufanstalt fur feuerfeste materialien. L. Litinsky 639
Rayon industry. M. H. Avram 173
Sampling and analysis of coal, coke and byproducts. Carnegie Steel Co. 109
Schutz der Bauwerke gegen chemische und physikalische Angriffe. Ed. by Graf & Goebel 698

NOTES—(c) Comment; (E. N.) Equipment News; (P. N.) Plant Notebook; (S) Synopsis or abstract; * illustrated.

East Engin.
Wilson

Book Reviews, continued:
Science and the scientific mind. Saidla & Gibbs ... 763
Solution of electrolytes. L. P. Hammett ... 109
Soluble silicates in industry. James G. Vail ... 108
Some applications of organic chemistry to biology and medicine. G. Barger ... 311
Storage batteries. G. W. Vinal ... 438
Sulphuric acid and its manufacture. H. A. Auden ... 311
Textbook of inorganic chemistry. Sydney Marks ... 109
Tin: its milling, production, technology and applications. C. L. Mantell ... 108
Transportation regulations ... 639
Trattatto di chimica generale ed applicata all' industria. Ettore Molinari ... 639
Treatise on chemical engineering applied to the flow of industrial gases, steam, water and liquid chemicals. G. Martin ... 258
United Kingdom. H. Butler ... 697
Welding encyclopedia. Mackenzie & Card ... 640
Borax, Increase in consumption. P. D. V. Manning ... 55
Preparation of borax ore in Death Valley. H. L. Glaze ... 296
Bronze, silicon (E. N.) ... 645
Business, Five factors in the fight for better (ed.) ... 465
Permanent prosperity versus chemical merchandising (c.). A. H. Doolittle 309
Butanol forges ahead. Wm. Mueller ... 59

C

Calcium chloride and flue gas in waste disposal. Copson & Curtis ... 167
Carbon black—export association formed. 57
Carbon dioxide—byproduct or waste material? C. L. Jones ... 416
Carbon and graphite as a refractory ... 590
Carbon tubes offer advantages in Cottrell units. A. D. Camp ... *676
Cartel-ized competition. H. A. Toulmin, Jr. ... 626
Catalysis, contact (S.) ... 177
Heterogeneous (S.) ... 699
Catalysts, mixed (S.) ... 641
Aerosol and aerogel (S.) ... 765
Causticizing benefits from improved theory and practice. W. E. Piper ... 362
Cellulose, Acetic acid from cellulose waste. 500
Apparatus for nitrating (S.) ... 641
Cement, Improvement and consolidation brighten the outlook (ed.) ... 24
Plastic chromite (E. N.) ... 316
Census—where haste prevents waste (ed.) 23
Centrifuge tests (S.) ... 642
Ceramics, Lignite and ceramics dominate research at North Dakota. I. Lavine ... *682
Mechanization of ceramics. H. M. Kraner ... 235
Chain and loading equipment (E. N.) ... 317
Chains and cables, Transport loads in several types of equipment ... 212

Charts:
Activity in consuming industries ... 20
Capital distribution in the chemical industry ... 10
Corrosion of chrome iron in boiling nitric acid ... 691
Humidity chart simplifies combustion gas problems. S. Hatta ... 165
Pressure steam ... 569
Rise of nitrogen fixation ... 288
Some aspects of nitrogen economics. C. Tyler ... 538
Specific heat charts for gases. A. C. Halferdahl ... 686
Trends in chemical producing and consuming industries ... 8

Chemical Engineering:
What price? Collins ... 91
Executive direction for (ed.) ... 75

Chemical Industry:
All's progress on the Western front (ed.) ... 26
American impression of European development. F. J. Curtis ... 302
Congressional legislation and the chemical engineering industries (ed.) ... 726
Industry's part in planned prosperity (ed.) ... 22
Output in 1929 and 1930 ... 782
Promoting economic stability in industries (ed.) ... 74
Trends in producing and consuming industries ... 8
When chemical meets chemical (ed.) ... 726
X-raying the structure of industry (ed.) ... 1
Chemical Warfare Service saves millions. Sadtler ... *88

Chemicals:
Chemical groups value 1921 to 1927 ... 57
Estimates of output of basic chemicals. 20
How the chemical product differs economically. L. W. Bass ... 409
"Outlook for Chemicals" (ed.) ... 602
Where heavy chemicals are made and consumed ... 4

Chilean nitrate: See Nitrate, Chilean

Chlorine:
Effect in fertilizer ... 411
Liquid chlorine lowered in price ... 54
Westvaco Chlorine Products sets record in evaporating electrolytic caustic soda. J. A. Lee ... 404
Carrier ... *583

Chromium:
Acid production increases. J. J. Kerrigan ... 52
Direct chromium plating (S.) ... 176
Four essentials to success in plating ... 147
Improving throwing power in solutions ... 279
Iron indispensable in nitric-acid plant. Bellinger ... 691
Clay, Advancement is general in clay and ceramic industries (Ed.) ... 24
Clutch (E. N.) ... 443
One-way (E. N.) ... 646

Coal:
Coal tar ... 35
Furnace-testing refractories for slag erosion. B. W. Stromberg ... *685
Hydrogenation makes progress in Germany ... 390
Lignite and ceramics dominate research at North Dakota. I. Lavine. *682
Must face new competition (Ed.) ... 666
Processing ... 33
Study insured by gifts (Ed.) ... 338

Coke and Coking:
Byproducts in 1928 ... 34
Byproducts in 1929 ... 33
Handling hot coke in city gas plant. M. B. Hile ... 251
New criterion for coking value of coal. T. C. Lloyd ... 169
Color—yardstick for valuation (ed.) ... 726
Columns, fractionating (S.) ... 377
Compressed Gas Mfrs. Assn.—meeting ... 103
Compressors, Curing packing ills in. H. A. Sommers ... *574
Gas ... *570
Hyper. R. W. Miller ... *571
Rotary (E. N.) ... 381
Container drums, Demolishing. O. R. Sweeney-C. G. Williams (c.) ... 502
A quandary. M. Szamatolski (c.) ... 436
Semi-automatic filler. L. E. Brunner (P. N.) ... 509
Interplant movement of materials requires proper shipping containers. B. L. Huestis ... 254
Transporting commodities under pressure ... *583

Control:
Dust (S.) ... 377
Instrument control in operation ... *580
Pulp consistency controller (E. N.) ... *704
Ratio control, automatic (E. N.) ... *703
Remote control in oil refineries (S.) ... 506
Testing welded construction during production ... *609
Thermostat and time switch (E. N.) 444
Variable-speed (E. N.) ... 510
Conveyors, Cold-formed spiral (E. N.) ... 511
Unique (E. N.) ... 382
Vibrating conveyors (E. N.) ... *704
Cooling-blast equipment (E. N.) ... 317
Copper, Corrosion of copper (S.) ... 506
Copper sulphate demand active ... 62
Copra—conveying from boat to cars ... 247

Corrosion:
Electrochemists in Detroit discuss corrosion ... 611
Letting the specialist prescribe remedies ... 488
Non-ferrous (S.) ... 700
Symposium at T.A.P.P.I. meeting ... 155
Varnished iron (S.) ... 176
Cost control in plant management. Prochazka ... 85
Cost system needed for process industries. L. C. Peabody ... 636
Costs, How to approach the problem of joint costs in chemical industry. J. T. Kreps ... 678
Coupling—flexible (E. N.) ... 317
Improved flexible (E. N.) ... 183
Cracking process, Carburol process (S.) ... 312
For high-compression fuel. N. W. Krase ... *624
Crane, small electric (E. N.) ... 644
Creosote, Finds large consuming market ... 55
Properties of creosote as marine preservative. Meyers-Atwood-Von Schrenk-Sadtler (C.) ... 306

D

Diphenyl—work on physical properites ... 298
Distribution, Developing new markets for products of high-pressure synthesis. C. L. Burdick ... *553
Geographical distribution of the process industries ... 3
Principal products and markets of American chemical industries ... 16
Driers, For rubber (S.) ... 176
Drill size holes. L. Coon (P. N.) ... 643
Drives, Right-angle (E. N.) ... 316
Three-speed (E. N.) ... 315
Drive equipment (E. N.) ... 382

Drying:
Hot air drying (S.) ... 312
How thermal data are used in drying tower design. A. B. Newman ... 145
Humidity chart simplifies combustion gas problems. S. Hatta ... 165
Spray drying latex in Sumatra. De Leeuw ... 100

Dust and Fume Handling:
Analysis of mechanical methods of dust collection. M. A. Lissman ... *630
Collector, centrifugal (E. N.) ... 440
Dust and fumes (S.) ... 699
Nuisances controlled by law or scientific approach. R. D. MacLaurin ... 360
Recording dust content of gases ... 690
Smoke nuisance control. R. D. MacLaurin (c.) ... 637
Dyestuffs, Regulating organic reaction under high pressure. Groggins & Hellback ... *693

E

Economizer, extended-surface (E. N.) ... 443

Editorials:
Advancement is general in clay and ceramic industries ... 24
All's progress on the Western front ... 26
Ammonia as a heavy chemical ... 338
Are you preparing for better business? ... 402
Bigger and better goat pastures ... 667
British version of "What is a Chemical Engineer?" ... 466
But is it really chemical engineering? ... 139
Can the petroleum refiner contribute more to conservation? ... 27
Can't we eliminate the common hazards? ... 727
Chemical industries' part in planned prosperity ... 22
Chemical engineering industries, promoting economic stability ... 74
Chemical legislation and the chemical engineering industries ... 726
Chilean nitrate again holds center of stage ... 401
Coal must face a new competition ... 666
Coal study insured by generous gifts (Ed.) ... 338
Commendable frankness in naming materials ... 339
Contact-chamber controversy livens sulphuric acid industry ... 22
Dangerous tampering with patent law ... 466
Doctor of Pipe Phitting receives the legal accolade ... 467
Education for the educated ... 138
Ellwood Hendrick—ave atque vale ... 666
Engineering and idealism ... 275
Erasing the stigma of costliness ... 467
Executive direction for chemical engineering ... 75
Excessive pension commitments often ignorantly assumed ... 403
Fire hazards, help remove ... 74
Fires that lose customers ... 727
Five factors in the fight for better business ... 465
Fuel for power and processing ... 23
German chemical industry in 1929 ... 338
"Handle mechanically" ... 202
Improvement and consolidation brighten the cement outlook ... 24
International industry strengthens acquaintances ... 274
Lawless use of legitimate materials ... 139
M.C.A. chooses new executive secretary ... 339
Mergers and profits in stock-market prices ... 138
Modernizing mental equipment ... 603
New Orleans in December ... 667
New tariff law of the land ... 339
New uses would solve this problem ... 402
Dr. William H. Nichols, leader of chemical industry ... 138
Nitrogen picture in rosier hues ... 602
Opportunity for international service 603
"Outlook for chemicals" ... 602
Our technical heritage finds visual expression ... 402
Outsider looks in on ferrous metal research ... 274
Paper industry demonstrates its appreciation of science ... 25
Parable of parallel lives ... 75
Patent confusion threatened by proposed legislation ... 727

NOTES—(c) Comment; (E. N.) Equipment News; (P. N.) Plant Notebook; (S) Synopsis or abstract; * illustrated.

Editorials, continued:
- Patent practice bill should be supported ... 138
- "The plastic age" in prospect ... 23
- Plastic industry has war of words ... 75
- Pressure and temperature applied to industrial progress ... 529
- Reach for a pencil instead ... 467
- Reassuring the users of industrial alcohol ... 338
- Removing the sting of unemployment ... 466
- Safer applications for hazardous materials ... 275
- Sodium sulphate demands attention ... 403
- Speeding up action under the flexible tariff ... 602
- Straightforward dealing with government bureaus ... 403
- Sustaining the spirit of safety ... 603
- Synthetic fiber and film forges rapidly ahead ... 25
- Trade revival or good showmanship? 667
- Unseemly conduct in chemical competition ... 666
- When chemical meets chemical ... 726
- Where haste prevents waste ... 23
- Why didn't we think of that? ... 275
- Wiley—another happy warrior ... 403
- Worth-while investigation of Western wood pulps ... 274
- X-raying the structure of industry ... 1
- Yardstick for color valuation ... 726

Education:
- But is it really chemical engineering? (ed.) ... 139
- British version of "What is a chemical engineer?" ... 466
- Engineering and idealism (ed.) ... 275
- For the educated (ed.) ... 138
- Letting youth absorb your gospel. J. H. Collins ... 368
- Modernizing mental equipment (ed.) ... 603

Electric:
- Discharge reactions (S.) ... 641
- Equipment (E.N.) ... •647
- Equipment (E.N.) ... 705
- Powder plant chooses electric equipment. C. Coburn ... 499
- Recording instruments (E.N.) ... 443

Electrolytic hypochlorite plant (S.) ... 111

Electrolytic metal cleaning without corrosion ... •634

Electrolytic production of hydrogen needed in ammonia. P. McMichael ... 484

Electrolytic tin (S.) ... 765

Electroplating, Airtight joints by electroplating. J. Calva (P.N.) ... 445

Electrostatic precipitators to purify burner gas. J. J. Healy, Jr. ... 366

Employees, Pension commitments sometimes excessive through ignorance (ed.) ... 403

Emulsification (S.) ... 506

Equipment News:
- Air compressors, unit ... 183
- Ammonia dissociator ... •769
- Ammonia dissociator, electric ... •771
- Asphalt-aluminum coating ... 772
- Automatic fire extinguisher ... 315
- Baffle-less heat exchanger ... 314
- Bearings, self-lubricating ... 704
- Belt carrier ... 770
- Belting, static-proof ... 646
- Belting, waterproof leather ... 511
- Blast cooling equipment ... 317
- Bronze, silicon ... 645
- Chain and loading equipment ... 317
- Clutch ... 443
- Clutch, one-way ... 646
- Compressor, rotary ... 381
- Control instruments, Electrical ... 444
- Controls, variable-speed ... 510
- Conveyor ... 382
- Conveyor, spiral ... 511
- Conveyors, vibrating ... •704
- Controller, pulp consistency ... •704
- Couplings, improved flexible ... 183
- Crane, small electric ... 644
- Dormant scale ... 114
- Drive equipment ... 382
- Drive, three-speed ... 315
- Dust collector, centrifugal ... 440
- Economizer, extended-surface ... 443
- Electrical equipment ... 114
- Electrical equipment ... 317
- Electrical equipment ... •647
- Electrical equipment ... 705
- Electrical instruments, graphic ... 443
- Electrode for "18-8" steels ... 382
- Exchanger, flash type ... •113
- Expansion joint ... •115
- Fan, airplane-type industrial ... 443
- Filter, traveling-leaf ... •113
- Fire extinguishing equipment ... 647
- First-aid kit ... 441
- Flake-ice machine ... 441
- Flexible couplings ... 317
- Gas detector ... 381
- Gas generator ... 316
- Gas washer, rotary ... 440
- Generator, acetylene ... •647
- Generator, two-range ... 442
- Grinder, three-roll ... •703
- Hard-surfacing rod ... 115
- Heat exchanger ... 181
- Heater, gas unit ... •772
- Heater, twin unit ... 512
- High strength welding rod ... 317
- Hoist, chain ... 443

Equipment News, continued:
- Hoist, electric ... 382
- Humidifying unit heater ... 115
- Hydrometer, improved ... 703
- Improved orsats ... 316
- Insulating material of alumina ... 510
- "Kalif"—bearing metal ... 646
- Light, portable ... 772
- Loader, heavy-duty ... •644
- Locomotive, gas-electric ... 441
- Locomotive, gasoline industrial ... •645
- Lubricator, mechanical grease ... 442
- Mask, rubber face ... 182
- Meter, high-pressure ... 181
- Meter, high-pressure flow ... •706
- Mill, colloid ... 769
- Motor, synchronous ... 706
- Motor, totally inclosed ... 443
- New hammer mills ... •115
- Optical pyrometer ... •114
- Packing material, metallic ... 771
- Paint, corrosion resistant ... 772
- Pipe benders ... 113
- Plastic chromite cement ... 316
- Power show brings out new equipment ... 768
- "Promal" metal for chains ... 442
- Proportioner for corrosive solutions ... 316
- Pulverizer, air-separation ... •770
- Pulverizer, disk type ... 644
- Pump proportioning ... 314
- Pump, centrifugal acid ... 440
- Pump, high vacuum rotary ... 510
- Pumps, non-clogging ... 382
- Pump, rubber acid ... 441
- Pyrometer, self-contact ... •646
- Ratio controller, automatic ... •703
- Reflector, dome ... 182
- Rectifiers, mercury arc ... •644
- Right-angle drive ... 316
- Rubber compound, self-vulcanizing ... 771
- Rubber-covered equipment ... 703
- Rubber-reclaiming equipment ... 381
- Sampler, automatic ... 645
- Sampler, liquid ... 512
- Scale, chemical bagging ... 510
- Screens, alloy ... •646
- Screen, cam-operated ... •772
- Screen, improved ... 182
- Screen, traveling water ... 315
- Screen, vibrating ... 182
- Screen, vibrating ... 314
- Separator, magnetic ... •705
- Separator, mechanical ... 182
- Shock absorber for gages ... 442
- Short-center drive belt ... 115
- Speed reducers ... •114
- Speed reducer ... •647
- Speed reducers, right-angle ... 442
- Starting equipment ... 183
- Switch, electric time ... •647
- Tank lining material ... 705
- Tank, pressure storage ... 510
- Temperature controller ... •771
- Temperature controller, non-indicating ... •772
- Tractor-operated equipment ... •773
- Transmission, variable speed ... •770
- Trap thermostatic steam ... 317
- Truck, hand-lift ... 383
- Truck, multiple lift hand ... 647
- Truck, power lift ... •773
- Turbine-pump motor ... 115
- Valves, adjustable ... 511
- Valve, duplex regulating ... 315
- Valve, non-sticking plug ... 444
- Valve, safety ... 442
- Valve with remote manual control ... •645
- Valves, improved bronze ... •704
- Vapor degreaser ... 316
- Vapor-proof receptacle ... •704
- Varnish, odorless laminating ... 512
- Weighing and sizing equipment ... 181
- Weld feeder ... 183
- Weld tester, portable ... •770
- Welder, dual drive ... 314
- Welder, gas-engine driven ... •771
- Welding equipment ... •646
- Welding rod, flux-coated ... 441
- Welding rod, Hascrome ... 181
- Wire cloth, stainless steel ... 704
- Y valve ... •115

Europe turns to American processes for motor fuels. G. Egloff ... 629

European chemical development. F. J. Curtis ... 302

Evaporation, Westvaco sets record in evaporating electrolytic caustic soda. J. A. Lee ... 404

Exchanger—flash type (E. N.) ... 113

Exports and imports, Chemical and allied products ... 21

F

Fans, Airplane-type industrial (E. N.) ... 443
Fluids handling. Badger & McCabe ... 494

Feldspar—Commercial standards ... 517
Purifying magnetically ... •688

Feldspar and flint, Plant employs pumping of dry solids. H. P. Margerum ... 237

Fermentation as a manufacturing process. 623

Fertilizer:
- Chlorine's effect in fertilizer ... 411
- Industry maintains status ... 43
- Will synthetics completely displace organic ammoniates. G. P. Walton ... 619

Filing system. G. A. Prochazka (P. N.) ... 701

Filters, Filter cloth life (S) ... 506
Traveling-leaf (E. N.) ... 113

Filtration studies (S) ... 110

Financial, Balance sheets of principal chemical companies ... 12
Capital distribution in the chemical industry ... 10
Structure of American Chemical Industry. T. M. Switz ... 9

Fire extinguisher (E. N.) ... 315

Fire Protection:
- Extinguishing equipment (E. N.) ... 647
- Foam solutions. C. B. White (P. N.) 379
- Inert gas used for fire protection ... 424
- (See also Safety)

Firebrick bonds, strength (S.) ... 641

Fires, lose customers (ed.) ... 727

Flammability of wood and fabrics (P. N.) 112

Flow, gas and liquid (S.) ... 690

Flow regulation at high pressure ... •579

Fluids handling. Badger & McCabe ... 494, 370, 430

Forest Products Chemical Co., Paper industry and its problems. Heritage & Curran ... 80

Fuel:
- Europe turns to American processes for motor fuels. G. Egloff ... 629
- For power and processing (ed.) ... 23
- New vapor-phase cracking process for high-compression fuel. N. W. Krase ... •624

Furnaces:
- Comparative economies of coke and electric (c.). Klugh ... 105
- Furnace-testing refractories for slag erosion. B. W. Stromberg ... •685
- Industrial furnaces (S.) ... 176

G

Gas:
- British experience with low-grade city gas. N. Swindin ... 680
- City gas trends ... 39
- Debenzolizing gas (S.) ... 110
- Detector (E. N.) ... 381
- Generator (E. N.) ... 316
- Government's new helium plant. C. W. Seibel ... •550
- Hyper compressor. R. W. Miller ... •571
- Industrial gas. R. S. McBride ... 36
- Liquified petroleum gases ... 103
- Liquefied petroleum gases studied ... 417
- New developments in gas compressors. •570
- New fuel industry created by high-pressure technology ... 560
- New sources remaking the gas industry. R. S. McBride ... 673
- Operating gas producers (S.) ... 439
- Purifying burner bases with electrostatic precipitators. J. J. Healy, Jr. 366
- Reaction temperature (S.) ... 176
- Refinery—progress made in utilization 354
- Refractories for gas making (S.) ... 110
- Sonic gas purity indicator. L. Hodges (P. N.) ... 702
- Specific heat charts for gases. A. C. Halferdahl ... 686
- Specific heats of gases. O. A. Hougen (c.) ... 762
- Synthesizing methanol from byproduct gases ... •548
- Tower fillings (S.) ... 439
- Using inert for fire protection ... 424
- Velocity ratio chief factor in good mixing. Chilton & Genereaux ... •755
- Washer, rotary (E. N.) ... 440
- Where the various types of gas are used ... 144

Generator:
- Acetylene (E. N.) ... •647
- Two-range (E. N.) ... 442

German chemical industry in 1929 (ed.) . 338

Glass:
- Bottles as a product of material flow 242
- Industry perfects new refractory. F. S. Thompson ... 599
- Laminated, absorbs attention of three industries. J. F. Walsh ... 418
- Level gage for molten glass. F. W. Mowrey (P. N.) ... •767
- Patents pertaining to laminated. J. F. Walsh ... 421

Glass wool manufacture ... 480

Great Britain—experience with low-grade city gas. N. Swindin ... 680
Solvents enterprise materializes ... 745

Great Western Electro Chemical Co. Manning ... 340

Grinder, three-roll (E. N.) ... •703

Grinding:
Three roll grinding. G. A. Vasel ... •759

H

Hammer mill (E.N.) ... 115

Heat:
- Baffle-less heat exchanger (E.N.) ... 314
- Exchanger (E.N.) ... 181
- Insulating material of aluminum (E.N.) ... 510
- Transfer of heat (S.) ... 439
- Gas unit (E. N.) ... •772

NOTES—(c) Comment; (E. N.) Equipment News; (P. N.) Plant Notebook; (S) Synopsis or abstract; • illustrated.

Heater, Humidifying unit (E.N.) 115
Twin-unit (E.N.) 512
Helium, Container *584
Government's new plant. C. W. Seibel *550
Opportunity for internatinaol service (ed.) 603
High-pressure, see pressure 37
Hoists, Chain hoist (E.N.) 443
Electric (E.N.) 382
Humidity, De-confusing terminology on psychrometry. A. H. Heatley (c.) 502
Hydrogen, Off-peak electric power for production of hydrogen. P. McMichael 484
Produced by ammonia dissociation. Berliner & Burke 751
Hydrogenation:
Adapted to the oil refinery. M. W. Boyer *741
Hydrogenation of oil, catalytic. S. D. Kirkpatrick *558
Hydrometer, improved (E.N.) 703
Hypochlorites, True hypochlorites appear for first time in 1929 54

I

Ice, Flake-ice machines (E.N.) 441
Ice, dry, Carbon dioxide—byproduct or waste material? C. L. Jones 416
Insecticides, Marketing problems important 62
Instrument, Adapting instrument control to high-pressure operation *580
Insulation, Thermal (S.) 110

J

Joint, Expansion (E.N.) 115

K

Kilns, Batch and continuous (S.) 110

L

Labor, Ratio of wages to value added by manufacture (Tables) L. W. Bass. 409
Unemployment measures (ed.) 466
Lacquer, Enamel production simplified. Lee *76
Lead, Recovering rubber factory. Haushalter 92
Leather, From hides to leather. W. P. Cahill 249
Light, portable (E. N.) 772
Lignite. See Coal.
Lime—sales and distribution in 1928 ... 56
Linseed oil. V. A. Acer 63
Liquids, Fluids handling. Badger & Baker 370
Lithopone—equipment used in handling material. J. P. Hubbell 244
Loader, heavy-duty (E.N.) 644
Locomotives, Gas-electric (E.N.) 441
Gasoline industrial (E.N.) *645
Lubrication, Gas exhausters without oil. S. E. Warner (P.N.) 509
Mechanical grease lubricator (E.N.) 442

M

Magnesium metal production 346
Magnetic separator for ground feldspar ... *688
Manufacture, How the chemical product differs economically. L. W. Bass .. 409
Manufacturing Chemists' Assn., Warren N. Watson chosen as secretary (ed.) .. 339
Market conditions and price trends 130, 194, 268, 332, 396, 458, 524, 596, 660, 720, 784
Mask hose approved by U. S. (E.N.) 383
Mask, rubber face (E.N.) 182
Materials, Lawless use of legitimate materials (ed.) 139
Testing strength of (S.) 766
Materials Handling:
Ammonia-soda plants economize with equipment. L. C. Hughes 232
Ceramics handling. H. M. Kraner ... 235
Flint and feldspar plant employs pumping of dry solids. H. P. Margerum 237
From hides to leather. W. P. Cahill 249
Glass bottles as a product of material flow 242
Handling equipment effects economies in a rubber factory. J. A. Lee 229
"Handle mechanically" (ed.) 202
Handling vegetable potash. J. F. Barnard 239
Heavy handling of superphosphate. M. Barclay 234
Hot coke in city plant. M. B. Hile. 251
Material Handling, continued:
Interplant movement of dangerous materials (C.) B. L. Huestis 308
Interplant movement of materials requires proper shipping containers. B. L. Huestis 254
Intraplant movement of materials in chemical engineering industries. G. L. Montgomery 204
Lithopone's handling systems. J. P. Hubbell 244
Packaging chemicals. W. E. Embleton 252
Paint plant flow 246
Paper manufacture handling equipment. F. A. Westbrook 248
Soap making emphasizes supplementary conveying 241
Mergers, And profits in stock-market prices (ed.) 138
Metals:
Detecting stresses in metal (S.) 765
Electrolytic metal cleaning without corrosion *634
Ferrous metals to resist high temperatures. J. A. Lee 587
"Kalif" bearing metal (E.N.) 646
Light metals for textile machinery (S.) 377
Pickling metal (S.) 765
"Promal" for chains (E.N.) 442
Meter, High-pressure (E.N.) 181
Acid meter (P. N.) *767
High-pressure flow (E.N.) *706
Prover for very slow rates of flow. Hodges (P.N.) 319
Methanol:
Approved for anti-freeze use 776
For anti-freeze use 448
Output increases 60
Synthesizing from byproduct gases ... *548
Unseemly conduct in chemical competition (Ed.) 666
Mill, colloid (E. N.) 769
Minerals, Non-metallics. P. M. Tyler & O. Bowles 40
Motors, Synchronous (E. N.) 706
Totally inclosed (E. N.) 443
Museum, Chicago Industrial being built (Ed.) 402

N

Names of products should not be misleading (Ed.) 339
Naval Stores:
Applying naval stores in the process industries. R. C. Palmer 422
During 1929. E. E. Holdman 64
Manufacturing naval stores by steam and solvent process. R. C. Palmer. *140
Producing naval stores from waste wood. R. C. Palmer 289
Nickel molybdenum catalyst (S.) 641
Nickel plated with aluminum 694
Nirosta products displayed 515
Nitric acid, Chrome iron indispensable in plant. Bellinger 691
From ammonia by pressure system. G. Fauser *604
Nitrogen and Nitrates:
Largest plant for nitrogen fixation (picture feature) 545
Picture in rosier hues (Ed.) 602
Nitrate, Chile again in center of stage (Ed.) 401
Production in 1929 1930 782
New Chilean law 478
Synthetic vs. Chilean nitrate 476
World production. C. Tyler 538
Rise of nitrogen fixation 288
Situation in the U. S. 31
Some aspects of nitrogen economics. C. Tyler 538
Will synthetics completely displace organic ammoniates? G. P. Walton 619
World developments 28
World statistics 1928 6
Nomograph for partial pressures of HCl in aqueous solutions. D. S. Davis *767
Nuisances, Controlled by law or scientific approach. R. D. MacLaurin 360
Smoke nuisance control. R. D. MacLaurin (c.) 637

O

Oil:
Adsorption in oil refining (S.) 766
Europe turns to American processes for motor fuels. G. Egloff 629
Hydrogenation adapted to the oil refinery. M. W. Boyer *741
Mullite refractories in refining. T. S. Curtis 590
New vapor-phase cracking process for high-compression fuel. N. W. Krase *624
Remote control in oil refineries (S.). 506
Tung oil recovered from nuts grown in Florida. W. H. Beisler *614
What catalytic hydrogenation offers industry. S. D. Kirkpatrick *558
See also Petroleum
Optical pyrometer (E. N.) 114
Orsats—improved (E. N.) 316
Oxygen—safe terminology (E. N.) 314

P

Packaging chemicals. W. E. Embleton 252
Packing:
Metallic packing material (E. N.) 771
Packing ills cured in six-stage compressor. H. A. Sommers *574
Paint, Automatic equipment used in paint plant 246
Corrosion resistant (E. N.) 772
Sales of paint, varnish and lacquer products 64
Patents:
Confusion threatened by proposed legislation (ed.) 727
Dangerous tampering with the law (Ed.) 466
Doctor of Pipe Phitting receives the legal accolade (Ed.) 467
Practice bill should be supported (Ed.) 138
Patents issued, 65, 117, 184, 260, 320, 384, 446, 513, 593, 649, 707, 774
Petroleum:
Aluminum in petroleum refinery. S. Gill 483
Calculating heat for flashing hydrocarbons. Turner & Harrell 98
Can the petroleum refiner contribute more to conservation? (Ed.) 27
Europe turns to American processes for motor fuels. G. Egloff 629
Heat calculation for flash distillation. G. H. Fancher (C.) 307
Liquified petroleum gases studied 417
Mounting pressures and temperatures in cracking petroleum. J. S. Wallis. *557
New fuel industry created by high-pressure technology *560
Technology of oil refining shows many advances. A. D. David 153
What chemical engineering has contributed to the industry. F. A. Howard 280
Phenol, a revived industry. J. Bebie 473
Phosphate, Furnace methods for production. Waggaman (c.) 105
Record changing conditions 45
Pipe benders (E. N.) 113
Pipes, Fluids handling. Badger & McCabe 370, 430
Freezing liquids in pipes simplified repairs. W. M. Laughlin (P. N.) .. 643
Simplified determination of line pressure drop. Chilton & Genereaus .. 689
Plant, Quiet glory of the incognito. F. D. Hartford (c.) 436
Plant construction in 1929 39
Plant Notebook:
Adjustable gravity separator. D. F. Othmer 380
Air flow in agitation problems. Kauffman 178
Airtight joints by electroplating. J. Calva 445
Aluminum foil coatings cut evaporation losses 508
Aera of drill size holes. L. Coon 643
"Cork-borer" bale sampler. L. K. Arnold 445
Decreasing flammability of wood and fabrics 112
Filing system. G. A. Prochazka 701
Foam solutions for fire protection with CO. C. B. White 379
Freezing liquids in pipes simplifies repairs. W. M. Laughton 643
Indirect volume finder. Hodges 180
Level gage for molten glass. F. W. Mowrey *767
Lubricating gas exhausters without oil. W. E. Warner 509
Making centrifugal pumps self-priming. Badger & Baker 509
Melting rosin from tank cars with electric heat. F. H. Hill 508
Meter for acids *767
Meter prover for very slow rates of flow 319
Nomograph for partial pressure of HCL in aqueous solutions. D. S. Davis .. *767
Pressure measurements in viscous fluids and plastic solids. Kleinschmidt (P. N.) 702
Quick open- and shut lid for vats. Brunner 319
Sampling thickeners 643
Semi-automatic filler for cans and drums. L. E. Brunner 509
Sonic gas purity indicator. L. Hodges 702
Spheres vs. cylinders 701
Use older barrels first. L. E. Brunner 380
Welding commercial copper 319
Plastics:
New fields incite multiplied output ... 47
"Plastic age" in prospect (Ed.) 23
War of words in industry (Ed.) 75
Platinum, Catalysis of SO_2 to SO_3. J. S. Streicher (c.) 501
Erasing the stigma of costliness (Ed.) 467

NOTES—(c) Comment; (E. N.) Equipment News; (P. N.) Plant Notebook; (S) Synopsis or abstract; * illustrated.

Potash:
- Are we nearing potash independence? T. R. Olive *728
- Caustic, affected by foreign offerings 57
- Expansion in domestic output. J. W. Turrentine 46
- Vegetable potash shipment. J. F. Barnard 239

Powder plant chooses electric equipment. C. Coburn 37

Power, Chemical technology in power production 493
- Powder plant chooses electric equipment. C. Coburn 499

Power generation proposed by binary chemical cycle 758

Precipitates, formation of (S.) 506

Precipitators, Carbon tubes offer advantages in Cottrell tubes. A. D. Camp.... *676
- Electrostatic, to purify burner gas. J. J. Healy, Jr. 366

Press, Couch presses (S.) 312

Pressure:
- Adapting instrument control to high-pressure operation *580
- Developing new markets for products of high-pressure synthesis. C. L. Burdick *553
- Fabricating pressure vessels (picture feature) 565
- Flow regulation at high pressures... *579
- Good engineering in pressure vessel. F. O. Leitzell *566
- High-pressure research. R. L. Brown (c.) 762
- High-pressure research. N. W. Krase (c.) 762
- High-pressure temperature technology. N. W. Krase *530
- High-pressure vessels (S.) 312
- Measurement in viscous fluids and plastic solids. Kleinschmidt (P. N.) 702
- Mounting pressures and temperatures in cracking petroleum. J. S. Wallis *557
- New fuel industry created by high-pressure technology *560
- Nitric acid from ammonia by pressure system. G. Fauser *604
- Non-industrial pressure research *534
- Plant simplified with welded pressure equipment. J. N. Compton..... *562
- Regulating organic reaction under high pressure. Groggins & Hellbach... *693
- Safe handling of unfired pressure equipment. M. E. Bonyun..... 695
- Simplified determination of line pressure drop. Chilton & Genereaus... 689
- Spheres vs. cylinders 701
- Technique and equipment for high pressures 577
- Temperature and pressure applied to industrial progress (Ed.) 529
- Theory and practice in vessel design. N. W. Krase *540
- Vessels fabricated with forge welding. T. R. Olive 412
- Weldless forged steel pressure vessels. J. L. Cox *585
- Where high pressures are being applied in American industry 544

Prices:
- Basic data 66
- Comparative in N. Y. market, 1929. 68
- Current prices in the N. Y. market 70, 132, 198, 270, 334, 398, 462, 526, 598, 662. 722
- Market appraisal of Chemical Industry 69

Production:
- Non-metallics 41
- Principal products and markets of American chemical industries 16
- Process industries production 2

Proportioner for corrosive solutions (E. N.) 316

Publications, government.. 111, 313, 378, 439, 507, 700

Publications, manufacturers' 116, 183, 383, 444, 512, 648, 706, 773

Pulp and Paper:
- Demonstrates its appreciation of science (Ed.) 25
- Extracted chestnut chips utilized for making paper products. J. A. Lee 348
- Grinding wheel for pulp (S.)..... 377
- Handling equipment used in paper manufacture. P. A. Westbrook.... 248
- Investigation of Western wood pulps (Ed.) 274
- Paper industry and its problems. Heritage & Curran 80
- Paper-making for Southern states. C. Little 172
- Producing kraft paper from Southern pines. R. H. Stevens..... *734
- Southern paper plant. S. J. Lloyd.. 276

Pulverizer, air-separation (E. N.)..... *770

Pulverizer, disk type (E. N.)..... 644

Pumps:
- Acid, centrifugal (E. N.)..... 440
- Fluids handling. Badger & McCabe.. 430, 494
- High-vacuum rotary (E. N.)..... 510
- Making centrifugal self-priming. Badger & Baker (P. N.)..... 509
- Non-clogging (E. N.)..... 382
- Proportioning pump (E. N.)..... 314
- Rubber acid (E. N.)..... 441

Pyrites, New method of burning pyrites (ed.) 275

Pyrometer, self-contact (E. N.)..... *646

R

Rayon:
- From peanut shells investigated.... 417
- Increases in 1929 48
- U. S. producers 49

Rectifiers, mercury arc (E. N.)..... 644

Reflector, dome (E. N.)..... 182

Refractories:
- For gas making (S.) 110
- Furnace-testing refractories for slag erosion. B. W. Stromberg..... *685
- Super-refractories for higher temperatures 589

Refrigeration (S.) 699

Research:
- Aluminum alloys used in construction of laboratory of Aluminum Co. R. S. McBride 352
- Corrosion remedies prescribed by the specialist 488
- Lignite and ceramics dominate research at North Dakota. I. Lavine. *682
- Making research pay its way. Swann 96
- Outsider looks in on ferrous metal research (ed.) 274
- Paves way for new technology..... *534
- Regulating organic reaction under high pressure. Groggins & Hellbach.... 693
- Testing welded construction during production *609

Rod, hard-surfacing (E. N.) 115

Rosin, Melting from tank cars with electric heat. F. H. Hill (P. N.)... 508

Rubber:
- Find uses instead of restricting output (ed.) 402
- Handling equipment effects economies in a rubber factory. J. A. Lee.... 229
- Reclaimed rubber—demand continues. 408
- Reclaiming equipment (E. N.)..... 381
- Recovering lead in rubber factory. Haushalter 92
- Rubber-covered equipment (E. N.)... 703
- Self-vulcanizing compound (E. N.).. 771
- Spray drying latex in Sumatra. De Leeuw *100

S

Safety:
- Can't we eliminate the common hazards? (ed.) 727
- First-aid kit (E. N.) 441
- Forestalling industrial hazards. C. A. Tibbals 148
- Help remove these hazards (ed.).... 74
- Interplant movement of dangerous materials. B. L. Huestis (C.)... 308
- Safe handling of unfired pressure equipment. M. E. Bonyun..... 695
- Safer applications for hazardous materials (ed.) 275
- Sustaining the spirit of safety (ed.).. 603
- Things you should know if you own and operate tank cars. F. D. Hartford *616

Salt, Harvesting salt in California..... 240
- Hearings on salt cake dumping..... 778

Salt cake. G. A. Gardner 56

Sampler:
- Automatic (E. N.) 645
- Liquid (E. N.) 512

Sampling thickeners (P. N.)..... 643

Saponifying fats (S.) 507

Scales, Chemical bagging (E. N.) 510
- Dormant (E. N.) 114

Screens, Alloy (E. N.) *646
- Cam-operated (E. N.)..... *772
- Improved (E. N.) 182
- Traveling water screen (E. N.) 315
- Vibrating screen (E. N.) 314
- Vibrating (E. N.) 182

Separation, centrifugal (S.) 110

Separator:
- Gravity. D. F. Othmer (P. N.).... 380
- Magnetic (E. N.) *705
- Mechanical (E. N.) 182

Shock absorber for gages (E. N.)..... 442

Silica, Modernized grinding pays big dividends. R. L. Cawood 304

Silicate of soda gains in export..... 57

Silicon carbide and fused alumina as refractory materials 591

Silver refining (S.) 507

Smoke. See Dust and Fume Handling.

Soap making, Materials handling in..... 241

Soda, Caustic:
- Causticizing benefits from improved theory and practice. W. E. Piper.. 362
- Evaporation to high concentrations by means of diphenyl vapor 345
- Westvaco sets record in evaporating. J. A. Lee 404

Sodium metasilicate. J. G. Vail....618, *736

Sodium sulphate, Demands attention (ed.) 403

Solvent action and viscosity (S.)..... 699

Solvents, Manufacturing naval stores by the steam and solvent process. R. C. Palmer *140

Soda Caustic, continued:
- British enterprise materializes..... 745
- Present and future demands 58

Speed reducers (E. N.).....114, *647
- Right-angle (E. N.) 442

Spray, Wetting agents for sprays..... 429

Starting equipment (E. N.) 183

Steam, high-pressure, a money saver. P. W. Swain 568

Steam trap—thermostatic (E. N.)..... 317

Steel:
- High-temperature steel 295
- Making the steel equipment dollar go further. F. D. Hartford 299
- Weldless forged steel pressure vessels. J. L. Cox *585

Sugar:
- Chemical engineering advances in the cane sugar industry. G. P. Meade..*746

Sulphur:
- Ammonium sulphate made by new processes 681
- Dioxide—production gains 54
- Producing at New Gulf. G. H. Reid.. *668
- Record year in the industry. R. F. Bacon 52

Sulphuric Acid:
- Catalysis of SO_2 to SO_3. J. S. Streicher (c.) 501
- Contact-chamber controversy livens industry (ed.) 22
- Europe replacing old chambers with modern system. A. M. Fairlie.... 468
- Industry's changing complexion 172
- Plants in U. S. 50
- Production and consumption by states 4
- Thermal aspect of liquid phase production. Parrish 93
- Vanadium catalysts for sulphuric acid. T. R. Harney (c.)..... 374

Superphosphate, Heavy handling. M. Barclay 234

Switches (E. N.) 317
- Electric time (E. N.) *647

Synthetic fiber, Forges rapidly ahead (ed.) 25

T

Tank cars, things you should know if you own and operate. F. D. Hartford..*616
- Transportation under pressure Sept. issue

Tanks:
- Cleaning acid (S.) 506
- Lining material (E. N.) 705
- Pressure storage (E. N.)..... 510
- Re-formulation for high temperature (c.). Wood 107
- Wood tanks (S.) 706

Tannin extracts produced. J. A. Lee.... 348

Tariff, New tariff (ed.) 339
- Speeding up action under the flexible tariff (ed.) 602

Technical Assn. of Pulp & Paper Industry, Meeting 155

Temperature, High:
- Controller (E. N.)..... *771
- Controller, non-indicating (E. N.).... *772
- Ferrous metals to resist high temperatures. J. A. Lee 587
- High-pressure temperature technology. H. W. Krase *530
- Mounting pressures and temperatures in cracking petroleum. J. S. Wallis. *557
- Theory and practice in vessel design. N. W. Krase *540

Textile machinery, light metals for (S.).. 377

Thermal data used in drying tower design. A. B. Newman 145

Toluene, thermal properties of (S.)..... 765

Tractor-operated equipment (E. N.)..... *773

Trade revival or good showmanship? (ed.) 667

Transmission, variable speed (E. N.).... *770

Transportation of commodities under pressure *583

Transportation regulations. B. W. Dunn (c.) 637

Truck hand-lift (E. N.) 383
- Power lift (E. N.) *773

Trucks, Multiple lift hand (E. N.)..... 647

Trucks and monorails, Carriers of materials 220

Tubes, carbon, offer advantages in Cottrell units. A. D. Camp.... *676

Tubing joints in pressure work..... *578

Tung oil, recovering from nuts grown in Florida. W. H. Beisler *614

U

U. S. Bureau of Mines, Survey of liquified petroleum gases 417

U. S. departments should be dealt with simply (ed.) 403

NOTES—(c) Comment; (E. N.) Equipment News; (P. N.) Plant Notebook; (S) Synopsis or abstract; * illustrated.

V

Valves:
- Adjustable (E. N.) 511
- Duplex regulating (E. N.) 315
- Electric safety (E. N.) 442
- For flow regulation at high pressures. *579
- Improved bronze (E. N.) *704
- In pressure work *578
- Plug non-sticking (E. N.) 444
- Remote manual control (E. N.) *645
- Y valve (E. N.) 115

Vanadium, Catalysis of SO_2 to SO_3. J. S. Streicher (c.) 501
Catalysts for sulphuric acid. T. R. Harney (c.) 374
Vapor degreaser (E. N.) 316
Vapor-phase cracking for high-compression fuel *624
Vapor-proof receptacle (E. N.) *704
Varnish, odorless laminating (E. N.) 512
Vat, Quick open-and-shut lid. Brunner (P. N.) 319
Vegetable oils 63
Viscometer, drop (S.) 110
Volume finder, indirect (P. N.). Hodges.. 180

W

Wages. See Labor.
Waste. Calcium chloride and flue gas in waste disposal. Curtis & Copson.. 167
Chestnut chips used for making paper products. J. A. Lee 348
Water treatment plant used in producing sulphur. G. H. Reid *668
Weighing and sizing equipment (E. N.). 181
Welder, Dual drive welder (E. N.) 314

Welding:
- Arc welding used for large gas line.. 154
- Electrode for "18-8" steels (E. N.). 382
- Fabricating pressure vessels with forge welding. T. R. Olive 412
- Gas-engine-driven welder (E. N.).... *771
- Hascrome rod (E. N.) 181
- High strength rod (E. N.) 317
- Improved feeder (E. N.) 183
- Liquid CO_2 plant has arc welding. A. F. Davis 435
- New equipment (E. N.) *646
- Of various metals (S.) 312
- Plant simplified with welded pressure equipment. J. N. Compton..... *562
- Rod, flux-coated (E. N.) 441
- Testing welded construction during production *609
- Wear-resisting (S.) 377
- Weld tester, portable (E. N.)..... *770
- Welded apparatus (S.) 765

Wiley—another happy warrior (ed.) 403
Wireless cloth, stainless steel (E. N.)... 704

Wood:
- Distillation equipment (S.) 377
- In plant equipment (S.) 699
- Manufacturing naval stores by the steam and solvent process. R. C. Palmer *140
- Naval stores applied in the process industries. R. C. Palmer 422
- Producing naval stores from waste wood. R. C. Palmer 289
- Treated lumber lasts longer in process industries. H. E. Tufft 481

World Power Conference 493

X

Xylose:
- Sugar acids from..... 429
- Becomes available 97
- Its economic and industrial prospects. 283

Z

Zinc:
- Coley process for (S.) 641
- Electrolytic zinc's invasion into the retort-zinc district 357

Zircon as a refractory. H. M. Kraner.... 589

AUTHORS' INDEX

ACER, V. A. Linseed oil 63

Atwood, William G. Properties of creosote as marine preservative (C.).... 306

BACON, Raymond F. Sulphur 52

Badger, W. L., and W. L. McCabe. Making centrifugal pumps self-priming (P. N.) 509
Badger, W. L., and W. L. McCabe. Fluids handling 370, 430, 494
Barclay, McKee. Heavy handling characteristic of superphosphate 234
Barnard, John F. Vegetable potash shipment 239
Bass, Lawrence W. How the chemical product differs economically.... 409
Bebie, Jules. Phenol—a survey of a revived industry 473
Beisler, W. H. Recovering tung oil from nuts grown in Florida *614
Bellinger, E. St. P. Chrome iron indispensable in nitric-acid plant 691
Berliner, J. F. T. and G. W. Burke. Low-cost hydrogen produced by ammonia dissociation 751
Bonyun, M. E. Safe handling of unfired pressure equipment 695
Boyer, M. W. Hydrogenation adapted to the oil refinery *741
Brown, R. L. High-pressure research (c.) 762
Brunner, Louis E. Quick open-and-shut lid for vats (P. N.) 319
Semi-automatic filler for cans and drums (P. N.) 509
Use older barrels first (P. N.) 380
Burdick, C. L. Developing new markets for products of high-pressure synthesis *553
Burke, G. W. and J. F. T. Berliner. Low-cost hydrogen produced by ammonia dissociation 751

CAHILL, WALTER P. From hides to leather 249
Camp, A. D. Carbon tubes offer advantages in Cottrell units..... *676
Cawood, R. I. Modernized silica grinding pays big dividends 304
Chilton, T. H., and R. P. Genereaux. Simplified determination of line pressure drop 689
Velocity ratio chief factor in good mixing of gases *755
Chute, H. O. Ethyl alcohol distillation improvements questioned (c.)... 106
Coburn, C. Safety governs choice of electric equipment in powder plant 499
Collins, James H. Letting youth absorb your gospel 368
What price chemical engineering?... 91
Compton, J. N. Plant simplified with welded pressure equipment..... *562
Coon, L. Area of drill size holes (P. N.) 643
Copson, Raymond L., and Harry A. Curtis. Calcium chloride and flue gas in waste disposal 167
Cox, John L. Weldless forged steel pressure vessels *585
Curran, C. E., and C. C. Heritage. Assisting the paper industry in solving its problems 80
Curtis, F. J. American impression of European chemical development. 302
Curtis, T. S. Mullite refractories in oil refining 590
Curtis, Harry R., and Raymond L. Copson. Calcium chloride and flue gas in waste disposal 167

DAVID, A. D. Technology of oil refining shows many advances..... 153
Davis, A. F. Arc welding in new liquid CO_2 plant 435
Davis, D. S. Nomograph for partial pressures of HCl in aqueous solutions. *767
De Leeuw, Hendrik. Spray drying latex in Sumatra *100
Doolittle, Arthur H. Permanent prosperity versus chemical merchandising (C.) 309
Dunn, B. W. Transportation regulations (c.) 637

EDWARDS, JUNIUS D. Exemplary adaptation of aluminum to construction 428
Egloff, Gustav. Europe turns to American processes for motor fuels... 629
Embleton, William K. Mechanical packaging of chemical products..... 252
Emley, Warren E. Economic and industrial prospects of xylose 283

FAIRLIE, ANDREW M. Europe replacing old chambers with modern high capacity H_2SO_4 systems... 468
Fancher, Geo. H. Heat calculation for flash distillation (C.)..... 307
Fauser, Giacomo. Ammonium nitrate production aided by pressure..... *591
Nitric acid produced from ammonia by modified pressure system *604
Foos, I. D. Where does the bootlegger get his alcohol? 163

GARDNER, GUY A. Salt cake 56

Genereaux, R. P., and T. H. Chilton. Simplified determination of line pressure drop 689
Velocity ratio chief factor in good mixing of gases..... *755
Gill, Stanley. Applying aluminum in petroleum refinery 483
Glaze, H. L. Borax ore preparation in Death Valley 296
Groggins, P. H., and R. Hellbach. Regulating organic reaction under high pressure *693

HALFERDAHL, A. C. Specific heat charts for gases 686
Harney, T. R. Vanadium catalysts for sulphuric acid (c.) 374
Harrell, J. W., and Smith D. Turner. Calculating heat for flashing petroleum hydrocarbons 98
Hartford, Fred D. Making the steel equipment dollar go further 299
Quiet glory of the incognito (c.)..... 436
Things you should know if you own and operate tank cars *616
Hatta, Sirozi. New humidity chart simplifies combustion gas problems.... 165
Haushalter, F. L. Recovering lead in rubber factory 92
Healy, J. J., Jr. Purifying burner gases with electrostatic precipitators.. 366
Heatley, A. H. De-confusing terminology on psychrometry (c.) 502
Hellbach, R., and P. H. Groggins. Regulating organic reaction under high pressure *693
Heritage, C. C., and C. E. Curran. Assisting the paper industry in solving its problems 80
Hile, M. B. Handling hot coke in city gas plant 251
Hill, F. H. Melting rosin from tank cars with electric heat (P. N.) 508
Hitchner, L. S. Insecticides marketing problems important 62
Hodges, Lawrence. Indirect volume finder (P. N.) 180
Meter prover for very slow rates of flow (P. N.) 319
Sonic gas purity indicator (P. N.).. 702
Holdman, Ernest E. Naval stores..... 64
Hougen, O. A. Specific heats of gases (c.) 762
Howard, Frank A. What chemical engineering has contributed to the petroleum industry 280
Hubbell, John P. Lithopone handling systems 244
Huestis, Bronson L. Interplant movement of dangerous materials (C.)..... 308
Interplant movement of materials requires proper shipping containers 254
Hughes, L. C. Ammonia-soda plants.... 232

JONES, C. L. Carbon dioxide—byproduct or waste material?..... 416

KAUFFMAN, H. L. Determining air flow in agitation problems (P. N.) 178
Kerrigan, James J. Chromic acid..... 52
Kirkpatrick, S. D. What caralytic hydrogenation offers the oil industry.. 558
Kleinschmidt, R. V. Pressure measurement in viscous fluids and plastic solids (P. N.) 702
Klugh, Bethune G. Comparative economies of coke and electric furnace (c.). 105
Kraner, Hobart M. Cost and quality ban wheelbarrow in ceramics 235
Zircon, magnesia, and chrome-silica.. 589
Krase, Norman W. High-pressure temperature technology *530
High-pressure research (c.) 762
New vapor-phase cracking process for high-compression fuel *624
Theory and practice in vessel design. *540
Kreps, Theodore J. How to approach the problem of joint costs in chemical industry 678

NOTES—(c) Comment; (E. N.) Equipment News; (P. N.) Plant Notebook; (S) Synopsis or abstract; * illustrated.

LAUGHTON, W. M. Freezing liquids in pipes simplifies repairs (P. N.).. 643
Lavine, Irvin. Lignite and ceramics dominate research at North Dakota *682
Lee, James A. Extracted chestnut chips utilized for making paper products 348
Ferrous metals to resist high temperatures 587
Handling equipment effects economies in a rubber factory..... 229
Lacquer enamel production simplified *76
Westvaco sets new record in evaporating electrolytic caustic soda 404
Leitzell, F. O. Good engineering in pressure vessel *566
Lissman, Marcel A. Analysis of mechanical methods of dust collection..*630
Little, Arthur D. Paper-making for Southern states (c.) 172
Lloyd, Steward J. Unique features characterize Southern paper plant..... 276
Lloyd, T. C. New criterion for coking value of coal 169

McBRIDE, R. S. Demonstration of confidence in research 352
Industrial gas 36
New sources remaking the gas industry 673
McCabe, W. L., and W. L. Badger. Fluids handling 370, 430, 494
McMichael, Paul. Cheaper ammonia with off-peak electric power 484
MacLaurin, R. D. Confusion or scientific approach in chemical nuisance control? 360
Is smoke responsible for property damage? 157
Smoke nuisance control (c.) 637
Manning, Paul D. V. Borax increase in consumption 55
Pacific Coast industry diversifies products 340
Margerum, H. P. Flint and feldspar plant employs pumping of dry solids.... 237
Meade, George P. Chemical engineering advances in the cane sugar industry *746
Meyers, R. E. Properties of creosote as marine preservative (c.)..... 306
Miller, R. W. Hyper compressor.....*571
Miscall, J. Producing clay-type asphalt dispersions 490
Montgomery, G. L. Intraplant movement of materials in chemical engineering industries 204
Mowrey, F. W. Level gage for molten glass (P. N.) *767
Mueller, William. Butanol forges ahead. 59

NEWMAN, ALBERT B. How thermal data are used in drying tower design 145
Nichols, Dr. William H. (ed.)..... 138

OLIVE, THEODORE R. Fabricating pressure vessels with forge welding.. 412
Are we nearing potash independence?..*728
Othmer, D. F. Accurately adjustable gravity separator (P. N.) 380

PALMER, R. C. Applying naval stores in the process industries 422
Manufacturing naval stores by the steam and solvent process.....*140
Producing naval stores from waste wood 289
Parrish, Percy. Thermal aspect of liquid phase sulphuric acid production. 93
Peabody, L. C. Process industries need workable cost system 636
Piper, W. E. Causticizing benefits from improved theory and practice.... 362
Prochazka, Geo. A. Devising a private filing system (P. N.) 701
Plant management on basis of cost control 85

REID, GEORGE H. Producing sulphur at Newgulf *668
Richardson, H. K. Automatically controlling acid effluents 293
Rochow, William F. High alumina magnesite, and chrome refractories.. 589
Ross, Edgar S. New mill brings economies to asphalt emulsion industry.... 425

SADTLER, ROBERT E. Chemical warfare service saves millions for industry *88
Properties of creosote as marine preservative (c.) 307
Seibel, C. W. Government's new helium plant *550
Sommers, H. A. Curing packing ills in compressor *574
Stevens, R. H. Producing kraft paper from Southern pines *734
Streicher, J. S. Catalysis of SO_2 to SO_3 (c.) 501
Stromberg, B. W. Furnace-testing refractories for slag erosion.....*685
Swain, Philip W. High-pressure steam a money saver 568
Swann, Theodore. Making research pay its way 96
Sweeney, O. R. Demolishing the container drum (c.) 502
Swindin, Norman. British experience with low-grade city gas 680
Switz, Theodore M. Financial structure of American chemical industry 9
Szamatolski, M. Container drums raise a quandary (C.) 436

THOMPSON, FRED S. Glass industry perfects new refractory 590
Thorp, John S. Re-formulation for tanks (c.) 107
Tibbals, C. A. Forestalling industrial hazards 148
Toulmin, H. A., Jr. Cartel-ized competition 626
Tufft, Harry E. Treated lumber lasts longer in the process industries.. 481
Turner, Smith D. Heat calculation for flash distillation (c.) 308
Turner, Smith D., and J. W. Harrell. Calculating heat for flashing petroleum hydro-carbons 98
Turrentine, J. W. Potash 46
Tyler, Chaplin. Nitrogen world developments 28
Some aspects of nitrogen economics.. 538
Tyler, Paul M., and Oliver Bowles. Nonmetallics 40

VAIL, JAMES G. Sodium metasilicate: its place among industrial alkalis 736
Vasel, G. A. Viewing the fundamentals of three-roll grinding.....*759
Von Schrenk, Hermann. Properties of creosote as marine preservative (c.) 306

WAGGAMAN, WILLIAM H. Furnace methods for phosphate production (c.) 105
Wallis, John S. Mounting pressures and temperatures in cracking petroleum *557
Walsh, James F. Laminated glass absorbs attention of three industries.... 418
Walton, G. P. Will synthetics completely displace organic ammoniates?... 619
Warner, W. E. Lubricating gas exhausters without oil (P. N.) 509
Watson, Warren N. Facts about industrial alcohol 160
Westbrook, F. A. Handling equipment used in paper manufacture 248
Williams, C. G. Demolishing the container drum (c.) 502

NOTES—(c) Comment; (E. N.) Equipment News; (P. N.) Plant Notebook; (S) Synopsis or abstract; * illustrated.